(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 080 813**
A1

(12) # EUROPEAN PATENT APPLICATION

(21) Application number: **82305947.2**

(51) Int. Cl.³: **H 01 R 13/516**

(22) Date of filing: **09.11.82**

(30) Priority: **20.11.81 US 323207**

(43) Date of publication of application:
08.06.83 Bulletin 83/23

(84) Designated Contracting States:
AT BE CH DE FR GB IT LI NL SE

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(54) **Hermaphroditic back shell cover.**

(57) A hermaphroditic assembly formed by a pair of cover members (32) is disclosed for enclosing the back portion (12) of an electrical connector (10) so as to protect the junction of conductors (30) and electrical terminals (28) carried thereby. The cover members (32) are assembled with a known connector (10) by moving them transversely of the connector (10) relative to each other until mating engagement is achieved.

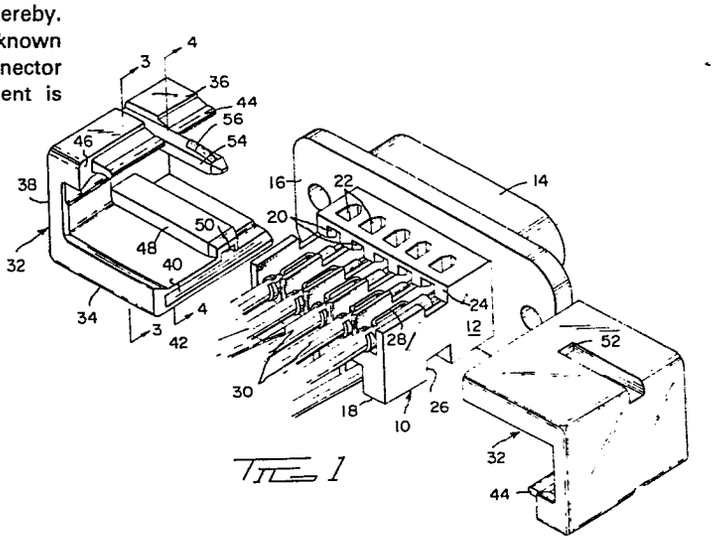


FIG 1

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HERMAPHRODITIC BACK SHELL COVER

The present invention relates to a back shell cover for an electrical connector, and in particular, to a shell formed by two hermaphroditic members which can be snap assembled to enclose the rear of a known connector. Contrary to most known covers, the present covers are moved over the connector transversely from opposite ends.

It is the common practice in the field of electrical connectors to provide some kind of rear cover to the connector to enclose and protect the juncture of the terminals carried thereby and the associated conductors terminated therein. These rear covers have generally been of two types, namely, a single piece housing which requires that the conductors be fed through an opening prior to termination and then the cover is slipped into place against the connector, or a two piece clam shell type arrangement enclosing the connector from the opposite elongated sides. An example of this latter type can be found in U.S. Patent No. 4,243,288. Each of these known covers have disadvantages, particularly when it is necessary to effect a repair of a conductor or terminal in the connector.

The present invention overcomes the difficulties of the known prior art by providing a shell assembly having a pair of hermaphroditic members which slide transversely over the back of a housing from opposite ends toward the center to latchingly engage.

The present invention is designed to be used in cooperation with a known electrical connector and comprises a pair of hermaphroditic rear cover members which together define a back shell closely enclosing a rear portion of an electrical connector. The rear cover members each have a pair of spaced walls with and intermediate connecting wall, alignment means on the free ends of the spaced walls, a latching extension on one spaced wall, and a groove on the opposite spaced wall for receiving

a latching extension, and means to grippingly engage the connector housing.

An embodiment of the present invention will now be described by way of example with reference to the accompanying drawings in which:

FIGURE 1 is an exploded perspective view of the subject invention and a known electrical connector;

FIGURE 2 is a perspective view of the subject invention assembled on the known electrical connector;

FIGURE 3 is a transverse vertical section taken along line 3-3 of Figure 1; and

FIGURE 4 is a transverse vertical section taken along line 4-4 of Figure 1.

The present invention has been shown in combination with a known electrical connector 10 which can be of the type disclosed in the above mentioned U.S. Patent No. 4,243,288, the disclosure of which is incorporated herein by reference. The connector 10 has an elongated housing 12 of rigid insulative material with a mating face 14, an intermediate integral mounting flange 16, and an open rear portion 18. A plurality of terminal passages 20 extend between the mating face 14 and rear portion 18 in a pair of aligned rows. The sides of the housing 12 are open at the rear portion 18 so that the passages 20 are enclosed at their forward ends and are channel-shaped opening outwardly at their rearward ends. The housing also includes latching apertures 22 each aligned with a respective passage 20 and spaced rearwardly of flange 16. The housing also has a pair of oppositely and outwardly directed, transversely extending recesses 24, 26.

The connector 10 also includes a plurality of terminals 28. These terminals can be similar to the terminals 18 of the above noted patent. Each has a mating end (not shown) and an oppositely directed end adapted to terminate a respective conductor. The conductor engaging ends preferably are of an insulating piercing type and lie in the exposed rear portion of the housing.

The present invention is comprised of a pair of hermaphroditic cover members 30, 32, made of a fairly rigid plastics material. Each cover member 30, 32, has a first long wall 34, a second parallel spaced short wall 36, and an integral intermediate wall 38 interconnecting the first and second walls. The first wall 34 has an elongated groove 40 in and extending along

the free edge 42 thereof. The short wall 36 has an elongated flange 44 extending from the free edge 46 thereof. The long wall 34 has a transversely extending rib 48 which forms a channel 50 opening in the groove 40 and opening outwardly of the first wall 34 forming a shoulder or stop 52. The short wall 36 has a latching member 54 extending from the free edge 46 thereof aligned to be received in the channel 50 and having an outwardly directed lug 56 adapted to engage the shoulder 52.

It will be clear from Figures 1 and 2 that the subject invention is mounted on the terminated connector 10 by simply bringing the mating cover members 30, 32 into cooperative engagement from opposite ends of the connector housing 12. The ribs 48 of the covers 30, 32 will engage in the respective transverse recesses 24, 26 of the housing 12 to securely hold them in place against movement perpendicular to the mating face 14. The latches 54 will extend through the channels 50 until the lugs 56 engage with the shoulders 52 to securely hold the cover members together. The flange 44 will engage in the groove 40 to further stabilize the cover members.

CLAIMS:

1. A hermaphroditic cover (32) which, with an identical cover (32), is intended to be mounted transversely on and enclose an open rear portion (12) of an electrical connector (10), said hermaphroditic cover (32) comprising:

a unitary member of molded insulative material having parallel spaced first and second sidewalls (34, 36) and an intermediate wall (38) extending normal to and joining said first and second sidewalls (34, 36) along one edge thereof, said walls defining half of a through cavity for receiving said rear portion (12) of said electrical connector (10) therein,

means (48) for grippingly engaging said connector housing,

means (50, 52, 54, 56) for securing said hermaphroditic cover to an identical cover which is in opposed relationship whereby,

said two hermaphroditic covers (32, 32) enclose and grippingly engage said rear portion (12) of said electrical connector (10).

2. A hermaphroditic cover according to claim 1 wherein said means for grippingly engaging said connector housing comprises:

at least one rib (48) on at least one of said sidewalls (34) directed inwardly toward the other sidewall (36) and extending normal to said intermediate wall (38), said rib (40) engaging in a transverse groove (24, 26) in said connector (10).

3. A hermaphroditic cover according to claim 1 further comprising:

interengaging means (40, 44) on the free edges of said first and second sidewalls (34, 36) whereby,

said cover (32) is held in aligned secured condition with a like cover (32).

4. A hermaphroditic cover according to claim 3 wherein said interengaging means (40, 44) comprise:

a groove (40) extending along the free edge of one of said sidewalls (34), and

a flange (44) extending along the free edge of the other of said sidewalls (36), said flange (44) being receivable in a groove (40) of a like cover (32).

5. A hermaphroditic cover according to claim 1 wherein said means (50, 52, 54, 56) for securing said hermaphroditic cover to an identical cover comprises:

a latching member (54) extending normally from a free edge of one of said sidewalls (36), said latching member (54) having a latching lug (56) thereon, and

a latching channel (50) extending normally into the other of said sidewalls (34) from said free edge, said channel having a latching shoulder (52), whereby

a latching member (54) of one cover (32) is received in a channel (50) of an oppositely oriented identical cover (32) with said latching lug (56) engaging said latching shoulder (52).

6. In combination with an elongated electrical connector (10) designed to terminate a plurality of electrical conductors (30), a back shell assembly enclosing and protecting the termination of said conductors (30) in said connector (10) and comprising:

a pair of hermaphroditic cover members (32) together defining a through cavity for receiving the terminating portion (12) of said connector (10) therein,

each said shell member (32) having first and second parallel spaced walls (34, 36), and an intermediate wall (38) interconnecting respective first ends of said first and second walls (34, 36), each said first wall (34) having an elongated groove (40) in the free end thereof, a transversely extending rib (48) on the inner surface of said first wall (34) defining a channel (50) intersecting said groove (40) and an outwardly directed shoulder (52) spaced from said free end,

said second wall (36) having an elongated flange (44) in the free edge thereof adapted to be received in the groove (40) of said first wall (34), and latching means (54) having an outwardly directed lug (56),

whereby a pair of oppositely oriented cover members (32) are brought together transversely of the connector (10) and snap fitted together with said second wall (36) flange (44) engaging in said first wall (34) groove (40) and said latching means (54) extending through said channel (50) with said lug (56) engaging said shoulder (52) to enclose the rear terminating portion (12) of said electrical connector (10).

7. A back shell assembly for enclosing an open rear portion (12) of an elongated electrical connector (10) designed to terminate a plurality of electrical conductors (30) in said open rear portion (12) and having at least one transverse channel (24, 26) extending across said connector (10), said back shell enclosing and protecting the termination of said conductors and comprising:

a pair of hermaphroditic cover members (32) together defining a through cavity for receiving the terminating portion (12) of said connector (10) therein, each said shell member (32) having a first long wall (34), a second parallel spaced short wall (36), and an intermediate wall (38) interconnecting said first and second walls along one edge thereof,

said first wall (34) having an elongated groove (40) in the free edge thereof and said second short wall (36) having an elongated flange (44) in the free edge thereof adapted to be received in the groove (40) of said long wall (34),

a transversely extending rib (48) on said long wall (34) inner surface forming a channel (50) intersecting said groove (40) and opening outwardly to define a shoulder (52),

latching means (54) on said short wall (36) including an outwardly directed lug (56), said latching means (54) adopted to extend through said channel (50) with said lug (56) engaging said shoulder (52), whereby,

a pair of oppositely oriented cover members (32) are snap fitted together to enclose a rear terminating portion (12) of an electrical connector (10).

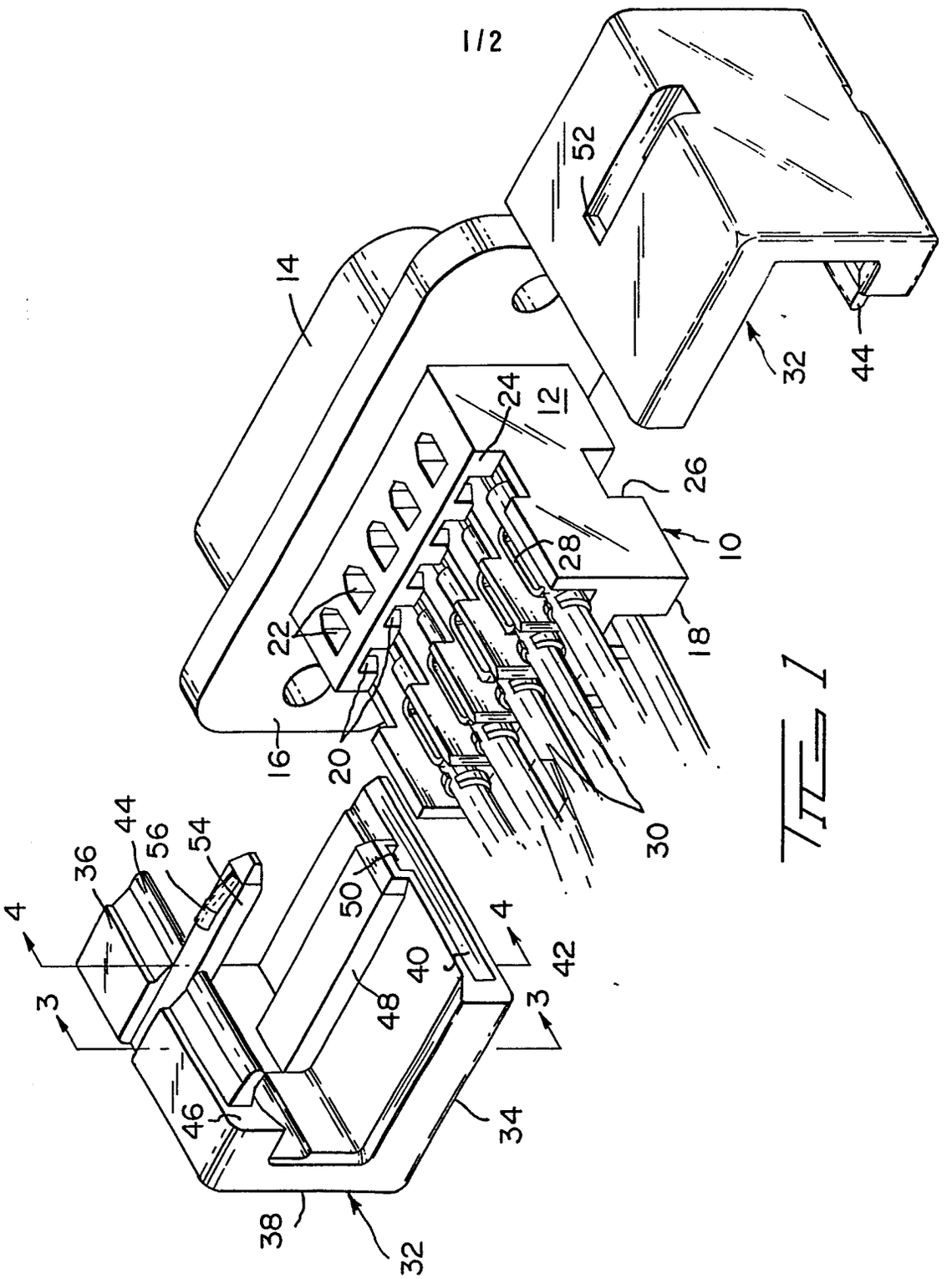

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FIG 1

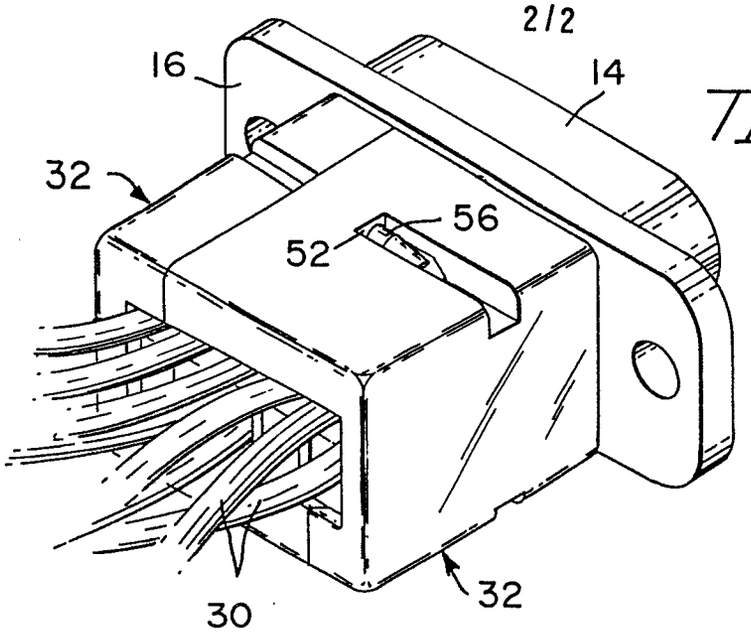


FIG 2

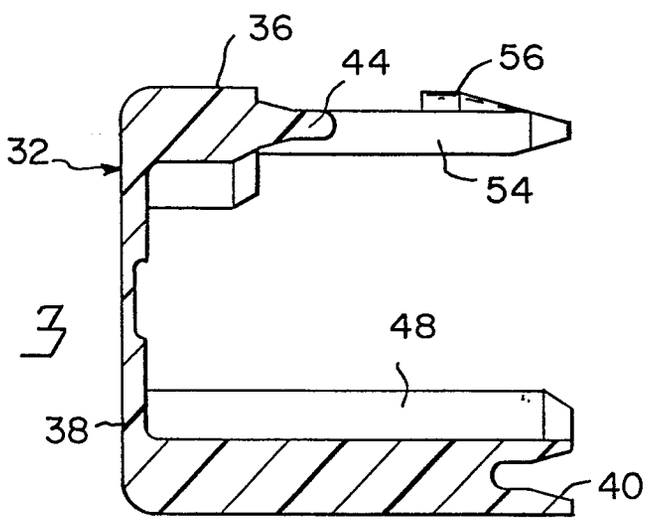


FIG 3

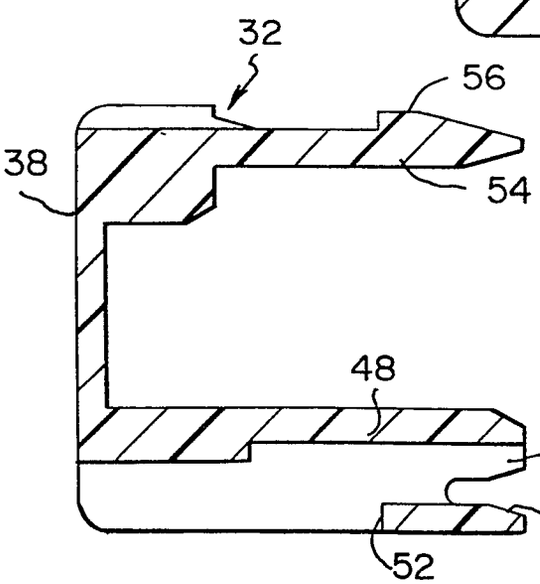


FIG 4

European Patent Office

0080813

Application number

EP 82 30 5947

EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X	FR-A-2 352 419 (CIT-ALCATEL) *Page 2, lines 24-40; page 3, lines 1-6 and lines 25-35; figures 1-3*	1,3,5-7	H 01 R 13/516
X	GB-A-2 042 827 (TRW) *Page 2, line 91 - page 6, line 15; figures 1-16*	1,3,5-7	
A,D	US-A-4 243 288 (AMP) *Column 2, line 20 to column 3, line 19; figures 1-5*	1,7	

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

H 01 R 13/00
H 01 R 23/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	01-03-1983	LOMMEL A.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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